December 16, 2004 8:30a.m. – 4:00p.m.

Environmental Research for the Future

Presenters:
STAR Grantees and Office of Research and Development Scientists

Sponsored by:
EPA Region 7 and EPA's National Center for Environmental Research

U.S. EPA Region 7 Office
901 N. 5th Street
Kansas City, Kansas

Seminar Overview

Don't miss this one-day seminar to hear about new, intriguing environmental research in the areas of *Genomics*, *Sustainability*, and *Remediation*! This one seminar will feature presentations from EPA's Science to Achieve Results (STAR) grantees and Office of Research and Development scientists.

> **"Rapid advances in genomics may have significant implications for risk assessment and regulatory decision making."**
>
> **Draft EPA Document: Potential Implications of Genomics for Regulatory and Risk Assessment Applications at EPA, March 2004**

> **"Pursuing the goal of sustainability allows us to use innovative science and technology to achieve the goals of environmental and economic prosperity for both current and future generations."**
>
> **Dr. Paul Gilman, Science Advisor USEPA**

Who Should Attend

Speakers and research projects were specifically selected to address the needs and interests of federal, state, and tribal environmental employees in Region 7. The purpose of this seminar is to educate and engage discussion between researchers and scientists from federal, state, and tribal environmental programs on the latest state of the art in environmental research. The seminar also will give researchers in Region 7 the opportunity to discuss their research in the context of EPA Region 7 environmental science needs and priorities.

Welcome to the "Second Environmental Research for the Future Seminar"

"This year we have modified the format of our seminar to include discussions of how these important research topics relate to Region 7. We need your ideas and new partnerships that will ultimately lead us to scientific excellence. I know you will find the presentations very interesting and engaging. Thank you for being our allies in our efforts to achieve cleaner air, purer water and better-protected land."

James B. Gulliford
Regional Administrator, US EPA Region 7

"Welcome to the second of our research seminars in Kansas City. This will be another opportunity to interact with some of the leading scientists conducting research on issues of critical importance to your region. Researchers from universities and ORD's laboratories will be here to inform you about cutting-edge scientific results from their work in Region 7. We are very excited about this seminar and hope that it will help you gain insight and understanding about these interesting and innovative research projects. Please join us at this special event."

Dr. William Farland
Acting Deputy Assistant Administrator for Science,
US EPA Office of Research and Development

AGENDA

8:30 – 9:00	Welcome **James B. Gulliford**, Regional Administrator, EPA Region 7 **Dr. William Farland**, Acting Deputy Assistant Administrator for Science, EPA Office of Research and Development

Room 2146

Sustainability

9:00 – 9:45	Sustainability and the Future of Environmental Protection by **Diana Bauer**, EPA, Environmental Engineer, Office of Research and Development
9:45 – 10:30	Attracting Private Developers to Brownfield Sites: The Value of Incentives by **Kris Wernstedt**, STAR grantee, Resources for the Future
10:30 – 11:15	Site-specific Management Approaches and Revitalization Tools - Electronic (SMARTe) by **Ann Vega**, EPA, Brownfields Research Program Manager, Office of Research and Development
11:15 – 12:00	Panel Discussion- Brownfields and Sustainability in Region 7 - Kris Wernstedt, Ann Vega, Diana Bauer
12:00 – 1:00	**Lunch (on your own)**

Genomics

1:00 – 1:45	Translating Genomics from Research to Risk Assessment by **David Dix**, EPA, Leader of Genomics Effects Team, Office of Research and Development
1:45 – 2:30	Study of Phthalates in Pregnant Woman and Children by **Shanna Swan**, STAR Grantee, University of Missouri-Columbia
2:30 – 3:15	USEPA Research Activities to Characterize Children's Environmental Exposures by **Elaine A. Cohen-Hubal,** EPA, Research Chemical Engineer, Office of Research and Development
3:15 - 4:00	Panel Discussion- What does genomics research mean to Region 7? - David Dix, Shanna Swan, Elaine Cohen-Hubal

Adjourn

Side Session – Room 5160

Remediation

1:00 – 1:45	Efficacy and Risk Assessment of Phosphate-Based Immobilization Technology in Lead Contaminated Soil in the Missouri Jasper County Superfund Site by **John Yang**, STAR Grantee, Lincoln University- University of Missouri
1:45 – 2:30	ORD Speaker to be Determined

Adjourn

Sustainability

9:00 a.m. – 9:45 a.m. Bauer

Diana Bauer, EPA, Environmental Engineer, Office of Research and Development

Sustainability and the Future of Environmental Protection

Sustainability is balancing a growing economy, protection for the environment, and social responsibility, so they together lead to an improved quality of life for ourselves and future generations.

EPA is working in various ways to help individuals and organizations find practical paths in the transition toward sustainability:

- Through science and engineering that enables monitoring, measuring, and tracking progress towards sustainability.
- Through science and engineering that forms the basis for design of the built environment, products, chemicals, and materials.
- Through the science underlying market-driven approaches as a tool for environmental improvement.
- Through partnerships with states, cities, communities, nonprofits, industry, and universities that encourage responsible use of our nation's resources.
- Through futures analysis that investigates and anticipates trends critical for a sustainable environment, thereby strengthening EPA's ability to develop tools and strategies for sustainability.

9:45 a.m. – 10:30 a.m. Wernstedt

Kris Wernstedt, STAR Grantee, Resources for the Future

Attracting Private Developers to Brownfield Sites: The Value of Incentives

Many brownfield properties have trouble attracting private capital. Left unattended, brownfield sites may further depress the economy of struggling neighborhoods. A growing number of public sector agencies have committed resources to incentives to encourage private investment in reusing contaminated sites. Because public funds are in short supply, the relative effectiveness and efficiency of these incentives is an important issue for both public agencies and the development community.

Our STAR-funded study surveyed 300 plus private developers to examine the relative attractiveness of incentives to promote redevelopment of brownfields. Protection from third-party liability appears to offer the most value to developers, yet protection from cleanup liability and relief from public hearing requirements also have a substantial value as a proportion of net project returns. These values vary significantly depending on the experience of the respondents with brownfields and infill redevelopments.

Sustainability

10:30 a.m. – 11:15 a.m. Vega

Ann Vega
EPA, Brownfields Research Program Manager, Office of Research and Development

Site-specific Management Approaches and Revitalization Tools - Electronic (SMARTe)

SMARTe is a web-based, decision support tool for developing and evaluating plans for the redevelopment and revitalization of potentially contaminated sites. SMARTe is intended for all stakeholders with varying levels and types of expertise. Brownfield project stakeholders should use SMARTe to:

•Assess both market and non-market costs and benefits of potential redevelopment/revitalization options,
•Clarify both private and public financing options,
•Evaluate and communicate environmental risks, and
•Facilitate communication among stakeholders.

When completed, SMARTe will provide the analytical tools needed to implement and integrate each component of the decision process allowing users to compare and evaluate future reuse scenarios.

11:15 a.m. – Noon Panel Discussion

Brownfields and Sustainability in Region 7

Genomics

1:00 p.m. – 1:45p.m. Dix

David Dix, EPA, Leader of Genomics Effects Team, Office of Research and Development

Translating Genomics from Research to Risk Assessment

Genomics is a rapidly expanding science with the potential to become a powerful tool in regulatory decision-making, risk assessment, and environmental monitoring. This presentation will review EPA policy developments, define genomics and toxicogenomics, and provide a history of the science as it relates to human health and ecological risk assessments. EPA has developed a genomics research program within the Office of Research and Development (ORD), a complementary *Interim Policy on Genomics* (http://www.epa.gov/OSA/spc/htm/genomics.htm), and a Genomics Task Force Workgroup, which produced a report on the *Potential Implications of Genomics for Regulatory and Risk Assessment Applications at EPA* (http://www.epa.gov/osa/genomics.htm). Most recently, the Science Policy Council created workgroups responsible for developing guidance and training to foster the interpretation and use of genomics information by EPA Program Offices and Regions.

1:45 p.m. – 2:30 p.m. Swan

Shanna Swan, STAR Grantee, University of Missouri- Columbia

Can Phthalates Subtly Alter Boys?

To identify a young rodent's gender without doing an elaborate test, biologists measure the distance from the animal's anus to its genital opening. This anogenital distance is slightly, but reliably, longer in males than in females—unless those males were exposed in the womb to pollutants, such as phthalates, that can alter fetal sex-hormone production. When that happens, a male's anogenital distance can become more similar to that of a female. Preliminary data suggest a similar trend in boys whose mothers were exposed during pregnancy to elevated amounts of some phthalates. " No one knows whether the anatomical changes are important in the boys' reproductive lives. In male rodents, however, fetal-phthalate exposures have been shown to severely disrupt the development of reproductive organs," notes Dr. Swan.

Phthalates, chemicals used in making many cosmetics, plastics, and other products, have become ubiquitous pollutants.

Genomics

2:30 p.m. – 3:15p.m. Cohen-Hubal

Elaine Cohen-Hubal, EPA, Research Chemical Engineer, Office of Research and Development

Overview of EPA Research Activities Aimed at Characterizing Children's Exposures

Given the potential vulnerability of children to the effects of environmental exposures, understanding the relationship between children's health outcomes and environmental exposures is an important research need to reduce uncertainty in risk assessment. Over the past 8 years, significant research activities have been initiated at EPA to increase understanding of children's vulnerabilities and to better characterize children's exposures to chemical stressors in the environment.

Research efforts include development of models, methods, and data to quantitatively describe ways that children are exposed to environmental stressors. Current and recently completed studies include large field studies to measure children's exposures to chemicals in their homes and daycare centers as well as targeted studies to better understand the determinants of exposure. In this presentation, ongoing and recent US EPA initiatives aimed at evaluating children's exposures and health risks will be discussed, including issues associated with characterizing cumulative risks from exposures to multiple environmental stressors.

3:15 p.m. – 4:00 p.m. Panel Discussion

What does genomics research mean to Region 7?

Remediation

1:00 p.m. – 1:45 p.m. Yang

John Yang, Assistant Professor
Star Grantee, Lincoln University- University of Missouri

Efficacy and Risk Assessment of Phosphate-Based Immobilization Technology in Lead Contaminated Soil in the Missouri Jasper County Superfund Site

The mining and smelting operations of the lead-zinc ore from the 1880s to the 1970s in the Tri-State Mining District Superfund Site resulted in a large area of contaminated soil and land. In-situ immobilization technology using phosphate-based amendments may be a cost-effective remediation alternative that safeguards human health and the environment from Lead (Pb) contamination. This presentation will address Pb immobilization mechanisms; the efficacy of risk reduction by soluble phosphates in laboratory studies; implementation and evaluation of field treatment; and environmental risk assessments in terms of bioavailability, leachability, chemical speciation, microbial community, and water quality.

1:45 p.m. – 2:30 p.m. Speaker

Seminar Specifics

For more information on this seminar contact Mandy Techau at (913) 551-7311 or techau.mandy@epa.gov or Brenda Groskinsky at (913) 551-7188 or groskinsky.brenda@epa.gov

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